EPA Pesticide Fate and Chemistry Database for Risk Assessment

Larry Liu
Environmental Scientist
OPP/OPPTS/EPA
(703) 305-5372
liu.larry@epa.gov

Key Words: pesticide, fate, chemistry, database, risk assessment

In order to support the use of pesticides in the United States, chemical manufacturers must submit information on the environmental fate and chemical/physical properties of their chemicals to EPA. The Office of Pesticide Programs (OPP) in EPA conducts a thorough technical review of the submitted data before using them to: (1) perform Drinking Water and Ecological Risk Assessments and (2) conduct Comparative Risk Assessments for chemicals with similar properties and toxicity concerns. In response to the demand for storing and retrieving fate data in a systematic manner, OPP has recently developed a Pesticide Environmental Fate and Chemistry Database (also known as the Pesticide Fate Database). This database is relational, written in Microsoft Access, and will provide a powerful and user-friendly tool to the government, industry, academia and the general public to search and sort accurate, reviewed, up-to-date pesticide fate and chemistry information. In addition, the PBT (Persistent, Bioaccumulative, and Toxic substances) and the Endocrine Disruptor programs in EPA will also use this database to identify compounds of their interest.

This database currently includes about 188 pesticides and more will be added in the future. Details of the database structure and its applications will be presented. Parameters in the database include: (1) basic physical and chemical properties; (2) biotic and abiotic degradation half-lives in soil and water under various controlled and natural environments, mobility, bioconcentration factors in fish for food use pesticides; (3) release of antifoulants in the aquatic environment; and (4) leaching of preservatives from the treated woods.

At the present time, OPP is conducting an internal QA/QC, and is in the process of placing the Pesticide Fate Database on the EPA website. The fate database is expected to be available to the public in May, 2004.